REMARKS

The Office Action dated January 2, 2004 has been received and carefully noted. The above amendment to claim 1 and the following remarks are submitted as a full and complete response thereto. No new matter has been entered. Claims 1, 2 and 4-7 are pending in this application and are resubmitted for consideration.

Claims 1-2 and 4-7 were objected to because of an informality in claim 1. The Office Action suggested that the phrase "base station controller unit" found on line 12 of claim 1 should be amended to read "base station control unit." Applicants have accepted this suggestion and have amended claim 1. Reconsideration and withdrawal of the objection are respectfully requested.

Claims 1, 2 and 4-6 remain rejected under 35 U.S.C. § 102(a) as being anticipated by *Lucent Technologies* (EP 0801513). Claim 7 remains rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lucent Technologies* in view of *Korpela* (U.S. Patent No. 5,946,634) or *Takese et al.* (U.S. Patent No. 5,963,555). The above rejections are respectfully traversed according to the remarks that follow.

The present invention is directed, according to claim 1, to a broadband cellular network device connected to a mobile services switching center and to one or more base transceiver stations with asynchronous transfer mode links. The device includes a base station control unit adapted to control distribution of asynchronous transfer mode cellular traffic consisting of asynchronous transfer mode cells and an asynchronous transfer mode

controller, separate from the base station control unit, connected to and being controlled by the base station control unit. The device also includes an asynchronous transfer mode switching means connected to and being controlled by the asynchronous transfer mode controller an adapted to switch asynchronous transfer mode cellular traffic, wherein the asynchronous transfer mode controller being arranged to function between the base station control unit and the asynchronous transfer mode switching means and being arranged to provide an interface for converting commands of a first communication protocol issued by the base station control unit into commands of a second communication protocol causing switching actions and being configured to provide an interface for issuing commands for connecting and disconnecting traffic channels passing through the asynchronous transfer mode switching means.

Lucent Technologies addresses architecture and evolution of cellular networks with both voice and data calls. The present application solves the problem of introducing ATM transport to base station controller in a most economic and technically feasible way. Thus, the problems solved are different. Moreover, it can be shown that none of the network elements (e.g. Cellular Switch (10) or Data DCS (46)) of *Lucent Technologies* are similar to base station controller of the present application. Thus, *Lucent Technologies* can not be considered as relevant prior art for the present application and the rejection should be withdrawn as being improper.

The basic approach in *Lucent Technologies* is to create an architectural evolution framework for the structure of cellular network for incorporating data services. More

specifically, *Lucent Technologies* addresses the problem of how to co-exist and evolve data and voice connections in a cellular system. This is not the problem that the present application solves.

The present application is not concerned with the nature of the data (voice or packet data) transferred by the "base station controller" (the broadband cellular network device according to Claim 1). For example, according to the present application there is no need for any architectural changes in the handling of voice and data calls from the normal network. Only the transport layer is changed from PCM to ATM with some modifications to base station controller. Thus, the present application addresses transport layer issues, not cellular data or architectural issues. The present application solves the problem of how to create technically and economically sensible base station controller that operates with a transmission network based on ATM technology without costly and clumsy circuit emulation (ATM to PCM conversions).

Lucent Technologies describes four stages or phases. Below each of these stages are discussed and detailed differences (in addition to the main differences discussed above) are given. The first stage (Fig. 3 in *Lucent Technologies*) assumes the existence of a cellular switch and a separate "Data Digital Cellular Switch (DCS)". These are connected over ATM connection via "Circuit/Packet to ATM" module (66). The basic idea is that Cellular Switch (10) handles voice calls and Data DCS (46) handles data calls.

In contrast, in the present application, the broadband cellular network device (according to Claim 1) continues its normal duties and does not make any such divisions or introduce new elements like DCS. In addition, there are features in the present application that are not in *Lucent Technologies*, such as using standardized protocol interfaces for controlling ATM switches.

The ATM Controller of the present application is not the same as the DCS of *Lucent Technologies*. This is because in the present application, as recited in claim 2, that the base station controller _comprises_ of ATM controller while *Lucent Technologies* clearly describes in Fig 3 that Data DCS is a separate element connected over ATM connection (66) to the Cellular Switch (10). Moreover, Data DCS of *Lucent Technologies* contains various elements that the ATM Controller of the present application does not contain, such as 52, 54, 56 etc. These are used so that DCS can be connected directly to PSTN or PSPDN. This is not in the scope of the Base station Controller of the present application. As stated above, the present application simply assumes that there exist other functions (such as MSC in GSM networks) that make such interworking functions.

With respect to Stage 2 (Figure 4 in *Lucent Technologies*), it is assumed that there still exists separate transports for voice (based on PCM or similar lines 32) and for data (based on ATM 73). Again, this is not the assumption of the present application. The present application assumes that all traffic to base station controller is by means of ATM transport. Other differences stated above (e.g. regarding the extra functions of DCS in

Lucent Technologies) are still valid. Again, Data DCS is by no means the base station controller as described in the present application.

Lucent Technologies then discusses Stage 3, (Figure 5 in *Lucent Technologies*), where the same comments apply here as discussed above with respect to Stage 2. The main difference (as described in *Lucent Technologies*) between the two stages is that in Stage 3 the DCS (46) also contains vocoders so that it may handle conversion from cellular voice to PSTM voice. Again this kind of transformation is not in the scope of the base station controller of the present application. Cellular Switch 10 or DCS (46) of *Lucent Technologies* cannot be considered the base station controller of the present application.

The Stage 4 of *Lucent Technologies* (Figure 6 of *Lucent Technologies*) contains a system in which base stations are only connected with ATM lines to ATM fabric and Integrated DCS (46). While the present application assumes all ATM transport to base station controller, the Integrated DCS of *Lucent Technologies* is not the same as base station controller of the present application. As stated in *Lucent Technologies*, page 7, column 12, lines 50-57, the Integrated DCS contains tight coupling of vocoders, in-band-signaling etc. The present application does not make such assumptions. As stated earlier, the base station controller is simply a network element that controls and manages base stations and connects base stations to MSC or other network elements that contain vocoder or PSTN/PSPDN interworking.

The Office Action appears to take the position, for example, element 28, in figure 3 of *Lucent Technologies,* would act like the BSC of the present application, that element 48 would act as the ATM controller the present application, and element 46 would act as an ATM switch. However, it seems clear from the figure 3 of *Lucent Technologies* that the ATM switch is element 58 (and 50) in figure 3. If, somehow, in *Lucent Technologies* there was an ATM controller having command translation capabilities, it would be ATM switching fabric control 51. However, element 58 does not have that capability.

The text of *Lucent Technologies* specifies that the signaling conversion in element 28 would include these functions: "The data call control functions include connection control, billing, and signaling conversion (e.g., between SS7 and ATM standards such as Q.2931)." This signaling is not related to signaling that would cause switching actions in the switch. SS7 is out of band signaling protocol for exchange of call control data between different switches. SS7 is not related to BSC or Radio Access Network. It can be used between MSC and other core network entities like Authentication Center etc. It is not used in controlling of switching functionalities in a Broadband cellular network device according to the present invention.

Element 28 of *Lucent Technologies* does not have any Base Station Controller functions. The specification of *Lucent Technologies* does not include the word BSC or Base station controller. The architecture is very different from the architecture of the present application. None of the network elements (e.g. Cellular Switch (10) or Data

DCS (46)) of *Lucent Technologies* are similar to base station controller of the present application.

Thus, Applicants have further distinguished the present invention from *Lucent Technologies* by introducing MSC in the claims. This further differentiates the present invention from *Lucent Technologies* even more since the functionalities Call control, billing, interfaces to other networks (PSTN, PSPDN), location management, authentication etc are all functions of MSC or Core network. As such, Applicants respectfully assert that *Lucent Technologies* fails to teach or suggest all of the elements of claim 1, and request that the rejection should be reconsidered and withdrawn.

Additionally, with respect to the rejection of claim 7, the Office also cites *Korpela*. Applicants respectfully assert that *Korpela* is not related to the present application. *Korpela* patent refers to a mobile station that is able to work with two or more different backbone networks by loading from the network compatible network protocols. The present application is directed to the internal operation of radio access network, not that of backbone network. Moreover, the present application is about the operation of radio access network controller, not that of mobile station. While Figure 4 of *Korpela* may bear some superficial resemblance to Figure 3 or Figure 4 of the present application, the figure of *Korpela* patent is used just to explain protocol records in data storage of mobile station, and not a functional network element in radio access network. As such, Applicants respectfully assert that *Korpela* fails to teach what has been alleged and that

the rejection of claim 7 is improper for this additional reason. Reconsideration and withdrawal of the rejection are respectfully requested.

Similarly, claims 2 and 4-7 should also be allowed over the prior art of record for at least the dependence of those claims on claim 1. Thus, Applicants respectfully request that claims 1, 2 and 4-7 be allowed and that the application should be allowed to proceed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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